



Clean Renewable Energy Bonds (CREBs)

Solar 2.0
Summer 2016

Summary of Proposed Design

San Ramon Valley USD, Phase 2 Solar PV Project Proposal

System Details

System Nameplate Size	kWp	3,363
Production Guarantee (% of Vendor Modeling)	%	95%
Number of Sites (Quail Run Eliminated)		15 of 16

Production		Estimated	Guaranteed
Year 1 Production per Nameplate - Estimated	kWh/kWp	1,656	1,573
Year 1 System Output	AC kWh	5,567,020	5,288,669
25-yr Cumulative Output	AC kWh	135,079,177	128,325,218

Ownership - Cash Purchase - CREBs Financed

Base Cost	\$	\$12,047,996
Soft Costs & Contingency	\$	\$931,204
CREBs Financing Cost	\$	\$264,882
Total Financed Amount	\$	\$13,244,082

Ownership - O&M & Performance Guarantee (PeGu) Costs (Estimated)

Year-1 O&M Cost	\$	\$101,443
Year-1 PeGu Cost	\$	\$0
25-Year Total O&M + PeGu Cost, Nominal \$	\$	\$3,466,229

Ownership - Other Operating Costs (Estimated)

25-Year Inverter/Equipment Replacement and Insurance Costs	\$	\$472,077
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Ownership - 25-year Project Financial Analysis

		Estimated	Guaranteed
Energy Costs, No PV (Nominal)	\$	\$56,773,905	\$56,773,905
Energy Costs, With PV (Nominal)	\$	\$37,976,877	\$40,260,398
Energy Costs, Sage Project Savings (Nominal)	\$	\$18,797,028	\$16,513,507

System Summary by Site

Site Number	Site Name	PV System Cash Purchase Base Price (\$)	Expected 1 st Year Production (kWh)
1	Bella Vista ES (BVES)	\$759,772	291,675
2	Bollinger Canyon ES (BCES)	\$471,529	233,478
3	Charlotte Wood MS (CWMS)	\$999,591	502,363
4	Coyote Creek ES (CCES)	\$986,415	455,433
5	Creekside ES (CES)	\$718,056	286,216
6	Green Valley ES (GVES)	\$551,468	244,776
7	Greenbrook ES (GES)	\$495,731	249,722
8	Hidden Hills ES (HHES)	\$829,556	380,443
9	Iron Horse MS (IHMS)	\$985,669	513,087
10	John Baldwin ES (JBES)	\$491,458	225,202
11	Live Oak ES (LOES)	\$722,141	352,482
12	Los Cerros MS (LCMS)	\$1,014,062	443,251
13	Pine Valley MS (PVMS)	\$1,051,940	488,294
14	Quail Run ES (QRES)	\$0	0
15	Tassajara Hills ES (THES)	\$705,826	312,547
16	Windemere Ranch MS (WRMS)	\$1,264,781	588,052
Total		\$12,047,996	5,567,020



Notes:
No tree removal assumed
Light pole removal required

C1: 104.4 kWp, C3: 26.1 kWp,
C4: 26.1 kWp, C7: 26.1 kWp

Proposed System Specifications

182.7 kWp, \approx 180 kWac
420 HIGH EFF. (435W) MODULES
10 MODULES/STRING, 42 STRINGS
[6] 30 kW INVERTERS
AZIMUTH ANGLE: 84°, -87°, -80°, 82°

NOTE: THE PROPOSED ARRAY LAYOUT SHOWN IS DESIGNED TO FIT EXISTING CONDITIONS AS THEY ARE DESCRIBED ON THIS DRAWING. kWp AND MODULE QUANTITY, TYPE, AND LAYOUT ARE SUBJECT TO CHANGE BASED ON SUNPOWER VERIFICATION OF ACTUAL SITE CONDITIONS, AS WELL AS ON MODULE AVAILABILITY AT THE DATE OF ORDER

San Ramon Valley USD
Bella Vista Elementary
1050 Trumpet Vine Lane,
San Ramon, CA 94582

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Notes:

Tree trimming may be necessary

R1: 31 kWp, R2: 55 kWp, R3: 47 kWp

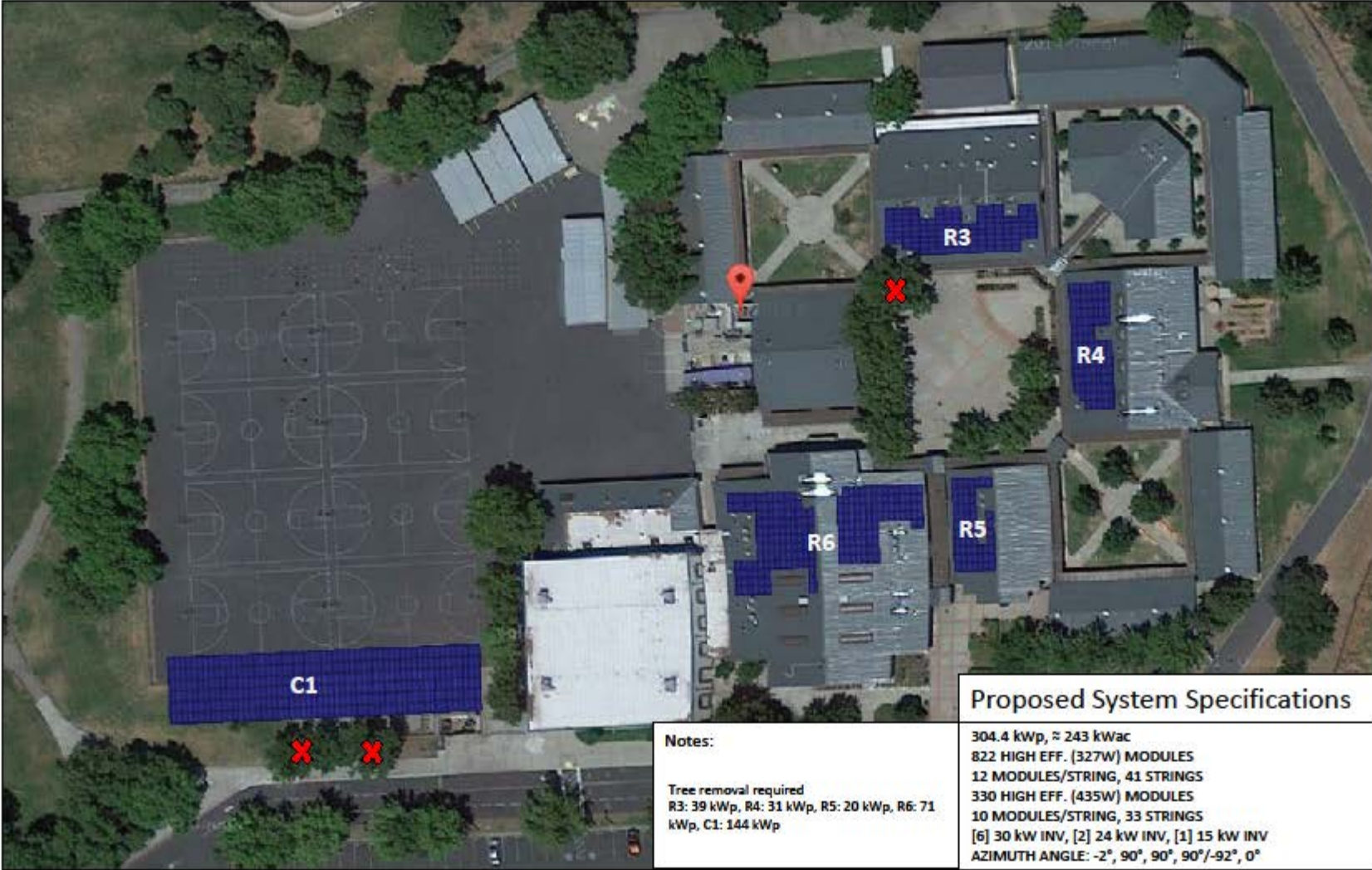
Proposed System Specifications

133.4 kWp, \approx 108.2 kWac
408 HIGH EFF. (327W) MODULES
12 MODULES/STRING, 34 STRINGS
[2] 24 kW INVERTERS, [3] 20 kW INV
AZIMUTH ANGLE: 20°

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San Ramon Valley USD
Bollinger Canyon Elementary
2300 Talavera Drive
San Ramon, CA 94506

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Notes:

Tree removal required
R3: 39 kWp, R4: 31 kWp, R5: 20 kWp, R6: 71 kWp, C1: 144 kWp

Proposed System Specifications

304.4 kWp, \approx 243 kWac
822 HIGH EFF. (327W) MODULES
12 MODULES/STRING, 41 STRINGS
330 HIGH EFF. (435W) MODULES
10 MODULES/STRING, 33 STRINGS
[6] 30 kW INV, [2] 24 kW INV, [1] 15 kW INV
AZIMUTH ANGLE: -2°, 90°, 90°, 90°/-92°, 0°

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San Ramon Valley USD
Charlotte Wood Middle
600 El Capitan Drive
Danville, CA 94506

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Notes:
Potential property line issue at C1
Tree removal required

C1: 78 kWp, C2: 52 kWp, C5: 144 kWp

Proposed System Specifications

274.1 kWp, ≈ 240 kWac
630 HIGH EFF. (435W) MODULES
10 MODULES/STRING, 63 STRINGS
[8] 30 kW INVERTERS
AZIMUTH ANGLE: -82°, 24°, -23°

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San Ramon Valley USD
Coyote Creek Elementary
8700 N. Gale Ranch Rd
San Ramon, CA 94582

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Notes:
Tree and light pole removal required
C1: 157 kWp, C2: 26 kWp

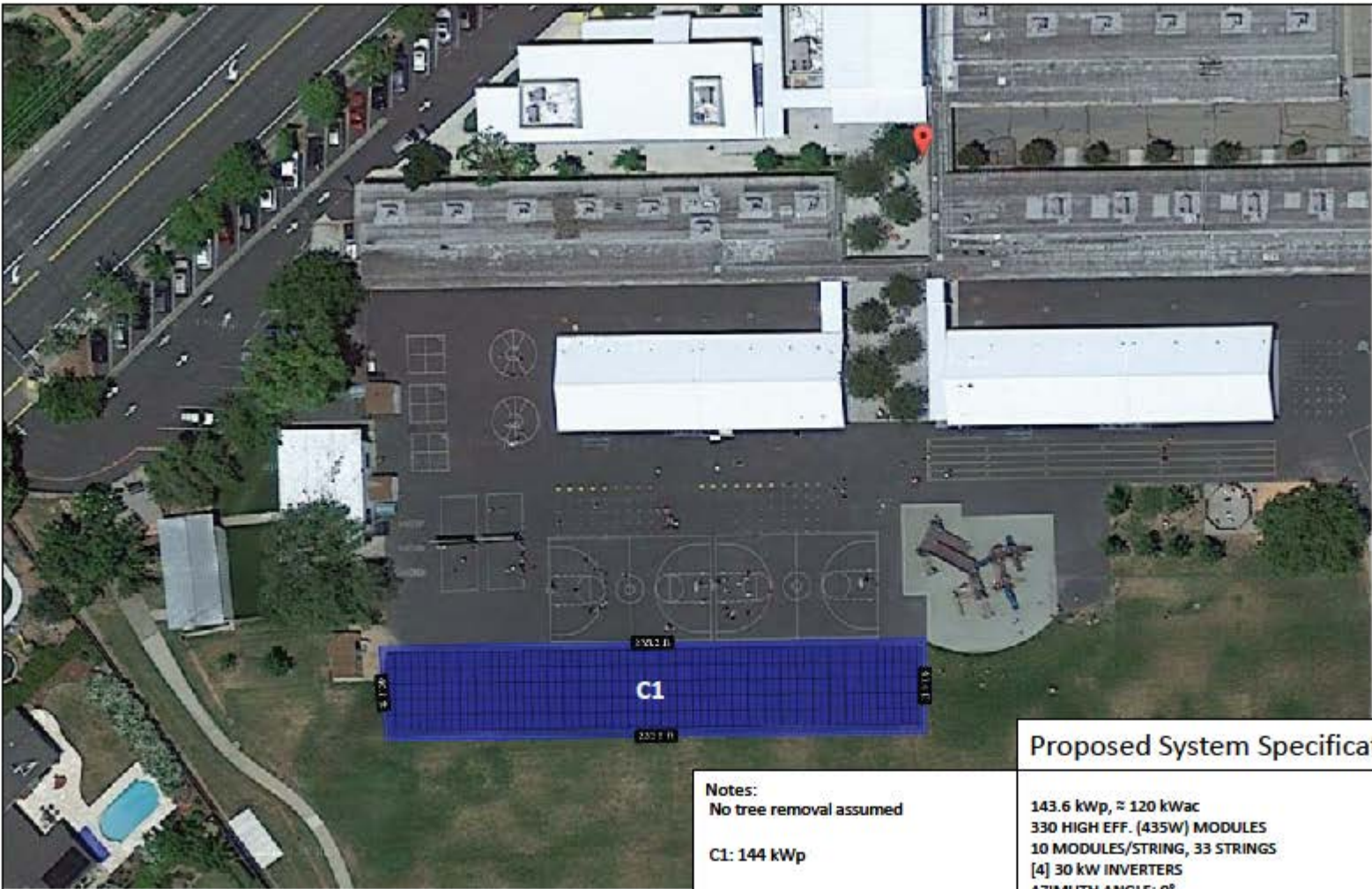
Proposed System Specifications

182.7 kWp, \approx 150 kWac
420 HIGH EFF. (435W) MODULES
10 MODULES/STRING, 42 STRINGS
[5] 30 kW INVERTERS
AZIMUTH ANGLE: 90°, -60

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San Ramon Valley USD
Creekside Elementary
5011 Massara St
San Ramon, CA 94582

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Notes:
No tree removal assumed

C1: 144 kWp

Proposed System Specifications

143.6 kWp, ≈ 120 kWac
330 HIGH EFF. (435W) MODULES
10 MODULES/STRING, 33 STRINGS
[4] 30 kW INVERTERS
AZIMUTH ANGLE: 0°

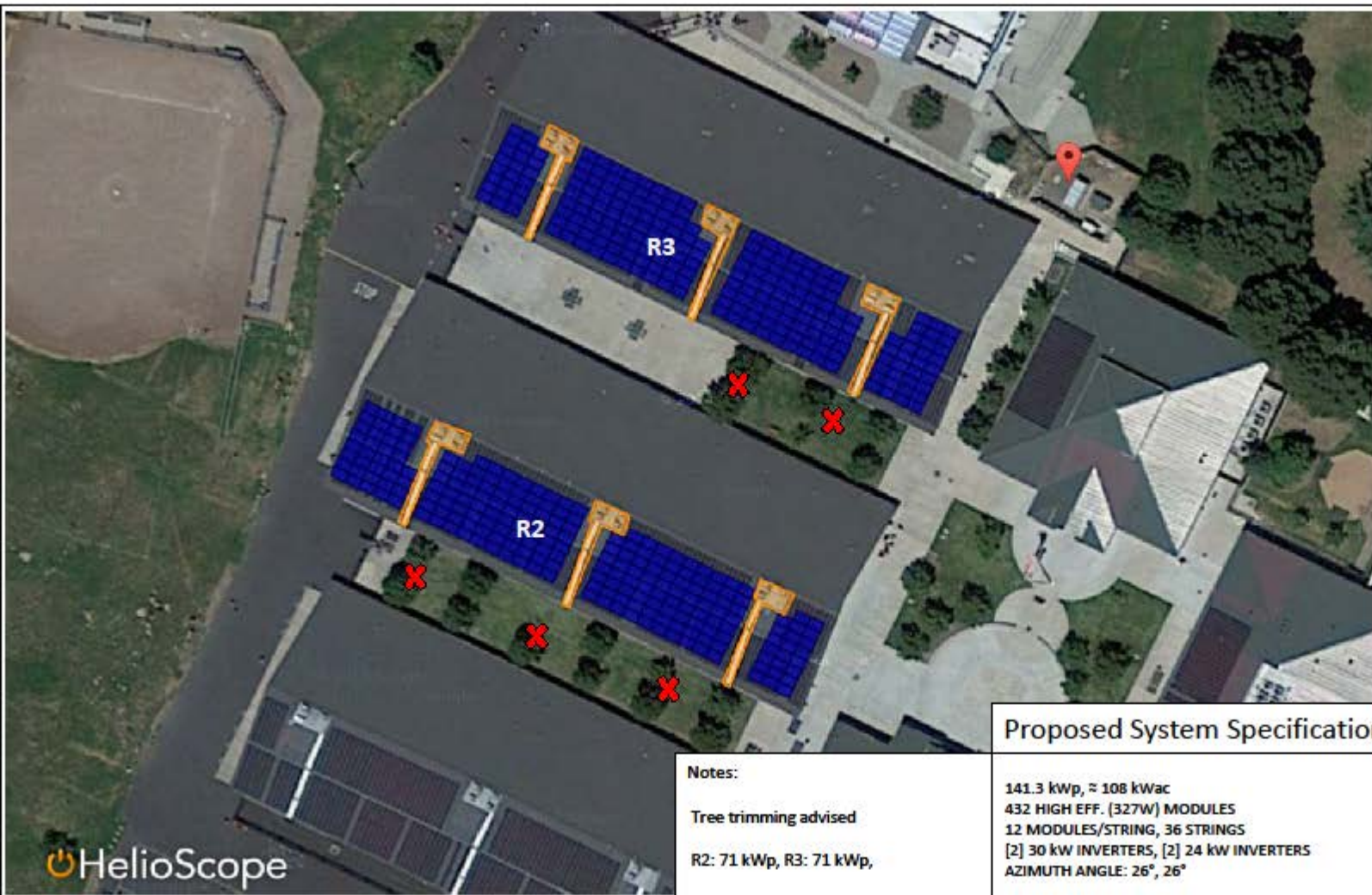
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San Ramon Valley USD
Green Valley Elementary
1001 Diablo Road
Danville, CA 94526

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Notes:

Tree trimming advised

R2: 71 kWp, R3: 71 kWp,

Proposed System Specifications

141.3 kWp, \approx 108 kWac
 432 HIGH EFF. (327W) MODULES
 12 MODULES/STRING, 36 STRINGS
 [2] 30 kW INVERTERS, [2] 24 kW INVERTERS
 AZIMUTH ANGLE: 26°, 26°

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San Ramon Valley USD Greenbrook Elementary 1475 Harlan Drive Danville, CA 94506		
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Notes:
Tree and light pole removal required

C1: 144 kWp, C2: 61 kWp, R2: 31 kWp

Proposed System Specifications

235.8 kWp, \approx 204.1 kWac
470 HIGH EFF. (435W) MODULES
10 MODULES/STRING, 47 STRINGS
96 HIGH EFF. (327W) MODULES
12 MODULES/STRING, 8 STRINGS
[6] 30 kW INVERTERS, [1] 24 kW INVERTER
AZIMUTH ANGLE: -75°, -75°, 60°

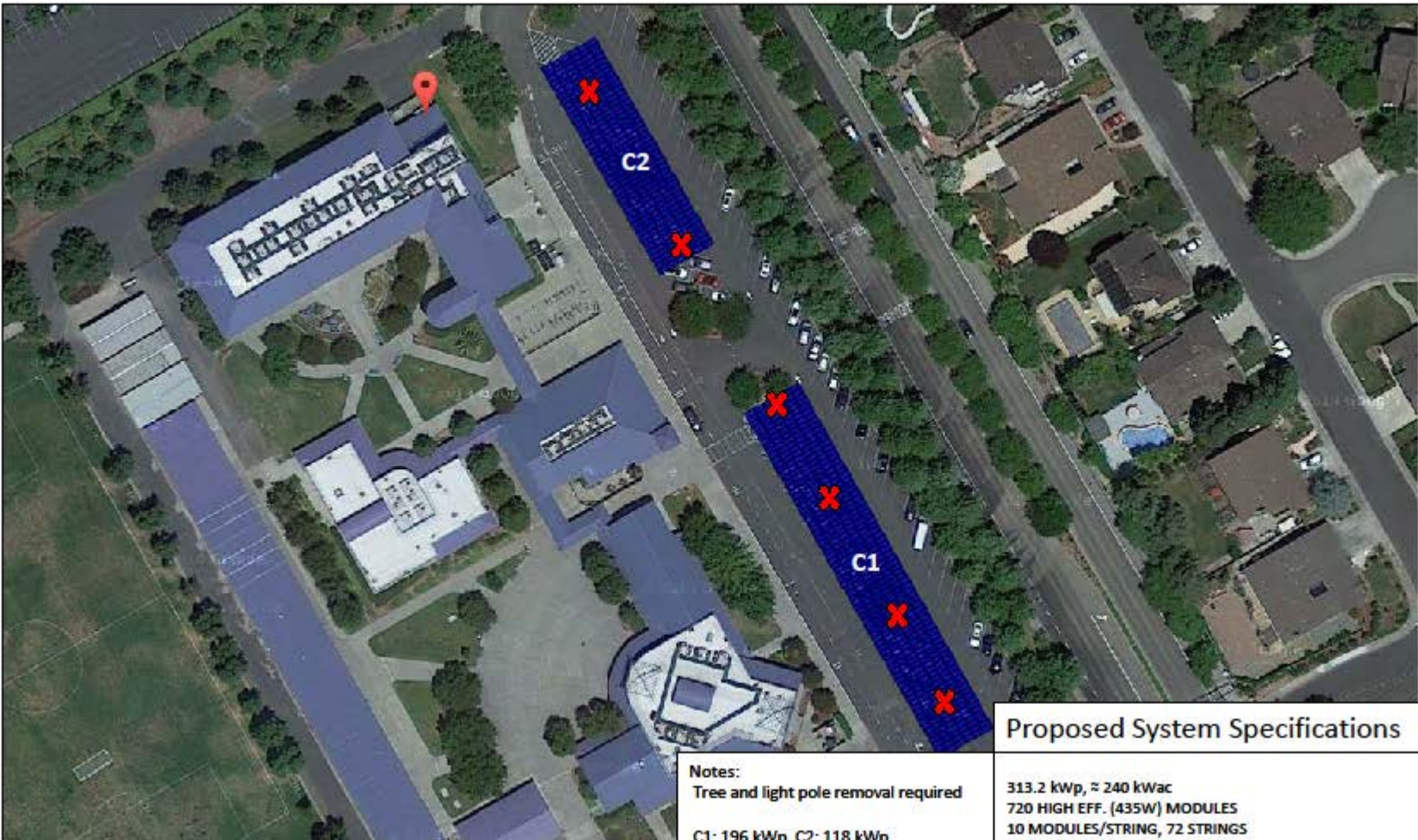
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San Ramon Valley USD
Hidden Hills Elementary
12995 Harcourt Way
San Ramon, CA 94582

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San Ramon Valley USD
Iron Horse Middle
 12601 Alcosta Blvd
 San Ramon, CA 94506

Proposed System Specifications

Notes:
 Tree and light pole removal required
 C1: 196 kWp, C2: 118 kWp

313.2 kWp, ≈ 240 kWac
 720 HIGH EFF. (435W) MODULES
 10 MODULES/STRING, 72 STRINGS
 [8] 30 kW INVERTERS
 AZIMUTH ANGLE: 60°, 60°

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Notes:

Tree removal required

R1: 39 kWp, R2: 55 kWp,
R3: 39 kWp

Proposed System Specifications

133.4 kWp, \approx 100 kWac
408 HIGH EFF. (327W) MODULES
12 MODULES/STRING, 34 STRINGS
[2] 30 kW INV, [2] 20 kW INVERTERS
AZIMUTH ANGLE: -32° , -32° , -32°

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San Ramon Valley USD
John Baldwin Elementary
742 Brookside Drive
Danville, CA 94526

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San Ramon Valley USD

Live Oak Elementary

5151 Sherwood Way

San Ramon, CA 94582

Proposed System Specifications

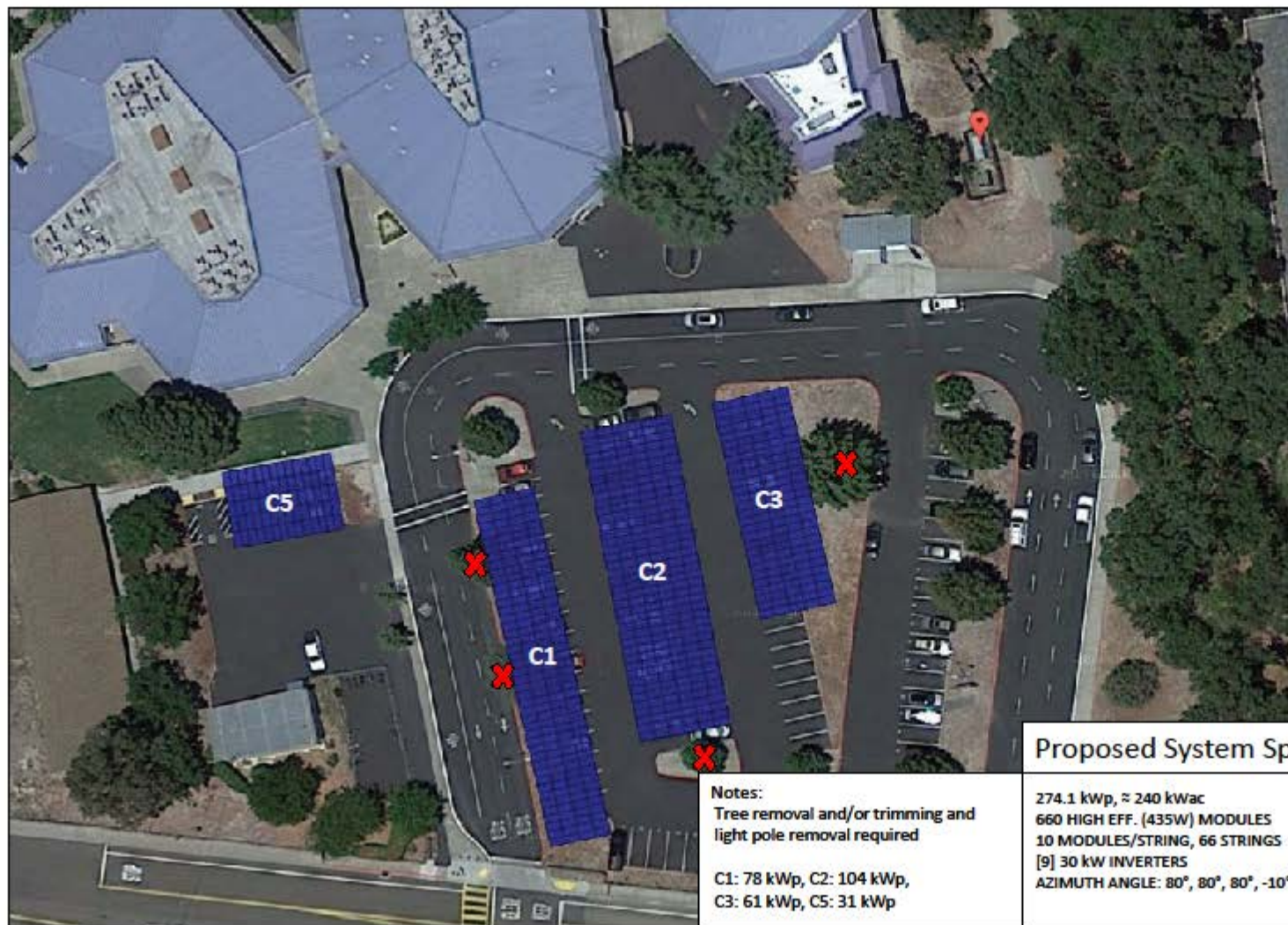
Notes:

Light pole removal required in parking lot

C1: 118 kWp, C2: 91 kWp

208.8 kWp, ≈ 180 kWac
480 HIGH EFF. (435W) MODULES
10 MODULES/STRING, 48 STRINGS
[6] 30 kW INVERTERS
AZIMUTH ANGLE: -35° , -35°

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Notes:
Tree removal and/or trimming and
light pole removal required

C1: 78 kWp, C2: 104 kWp,
C3: 61 kWp, C5: 31 kWp

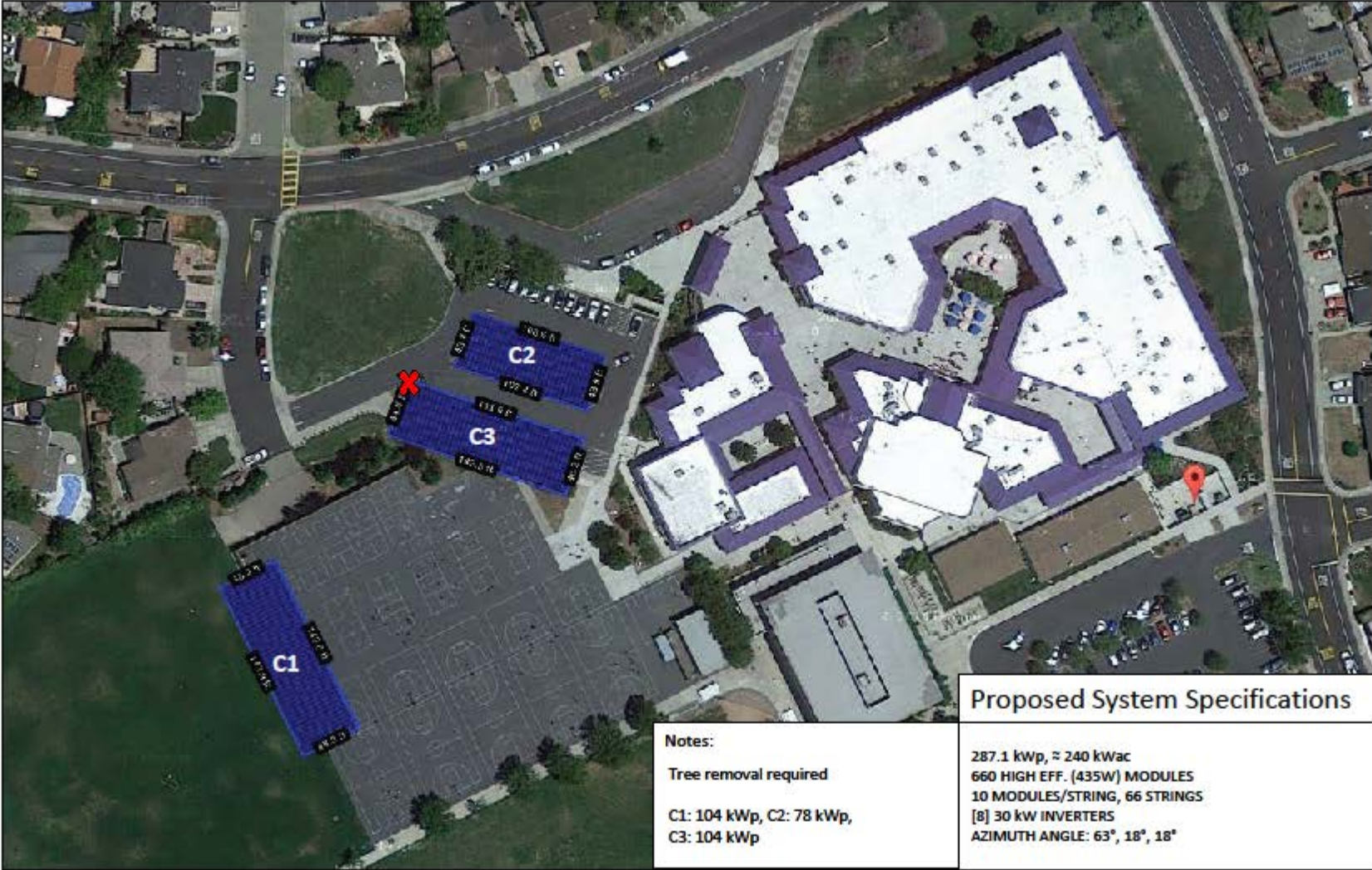
Proposed System Specifications

274.1 kWp, \approx 240 kWac
660 HIGH EFF. (435W) MODULES
10 MODULES/STRING, 66 STRINGS
[9] 30 kW INVERTERS
AZIMUTH ANGLE: 80°, 80°, 80°, -10°

NOTE: THE PROPOSED ARRAY LAYOUT
SHOWN IS DESIGNED TO FIT EXISTING
CONDITIONS AS THEY ARE DESCRIBED ON
THIS DRAWING. WPV AND MODULE
QUANTITY, TYPE, AND LAYOUT ARE SUBJECT
TO CHANGE BASED ON SUNPOWER
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AS WELL AS ON MODULE AVAILABILITY AT
THE DATE OF ORDER

San Ramon Valley USD
Los Cerros Middle
968 Blemer Road
Danville, CA 94526

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San Ramon Valley USD

Pine Valley Middle
3000 Pine Valley Road
San Ramon, CA 94506

Proposed System Specifications

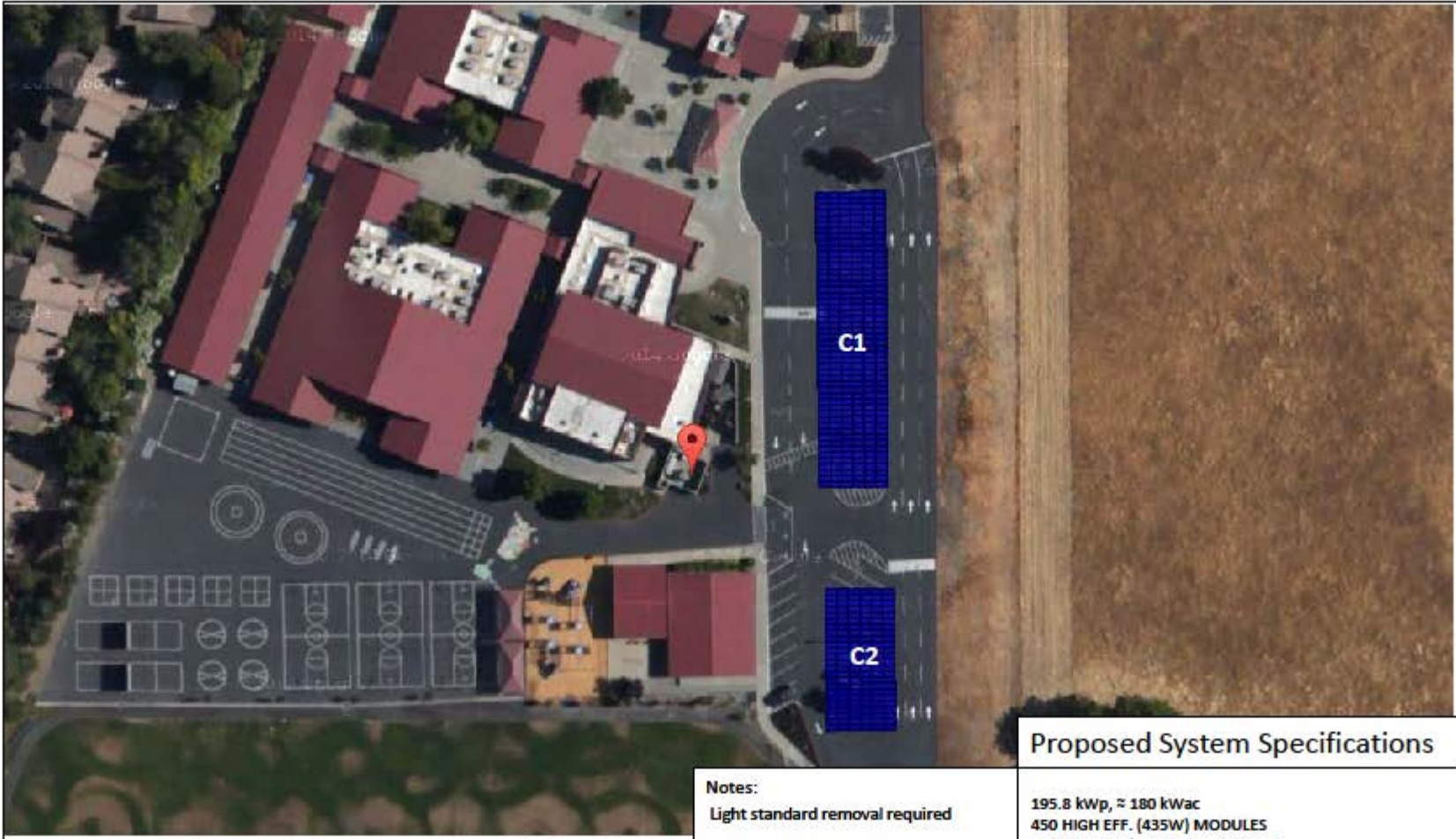
Notes:

Tree removal required

C1: 104 kWp, C2: 78 kWp,
C3: 104 kWp

287.1 kWp, ≈ 240 kWac
660 HIGH EFF. (435W) MODULES
10 MODULES/STRING, 66 STRINGS
[8] 30 kW INVERTERS
AZIMUTH ANGLE: 63°, 18°, 18°

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Notes:
Light standard removal required

C1: 131 kWp, C2: 65 kWp

Proposed System Specifications

195.8 kWp, \approx 180 kWac
450 HIGH EFF. (435W) MODULES
10 MODULES/STRING, 45 STRINGS
[6] 30 kW INVERTERS
AZIMUTH ANGLE: 88°, 88°

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San Ramon Valley USD
Tassajara Hills Elementary
4675 Camino Tassajara Rd
San Ramon, CA 94506

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San Ramon Valley USD
Windemere Ranch Middle
11611 E. Branch Parkway
San Ramon, CA 94582

Proposed System Specifications

Notes:

Potential property line issue at C8
Tree removal required
C3: 157 kWp, C8: 196 kWp

352.4 kWp, \approx 300 kWac
810 HIGH EFF. (435W) MODULES
10 MODULES/STRING, 81 STRINGS
[10] 30 kW INVERTERS
AZIMUTH ANGLE: -33° , 58°

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Initial Conceptual Design Only